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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,916	11/16/2001	Mark T. Feuerstraeter	42390P11857	3507

8791 7590 07/03/2007  
BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
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EXAMINER
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DALENCOURT, YVES

ART UNIT	PAPER NUMBER
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2157

MAIL DATE	DELIVERY MODE
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07/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/990,916

Applicant(s)

FEUERSTRAETER ET AL.

Examiner

Yves Dalencourt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 30-43 and 45-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-43 and 45-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 03/09/2007.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This office action is responsive to Request for Continued Examination (RCE) filed on 04/11/2007.

In the prior Office action, the examiner had objected to claims 44, 46, and 47. The applicant has then canceled claim 44 and has incorporated the limitations of claim 44 into independent claims 30, 39 and 43. After a further review of claims 30, 39 and 43, and after an updated search, the Examiner is therefore obliged to apply an art rejection for claims and its dependent claims based on the prior applied references and the newly applied prior art as found below. The applicant's arguments are moot in view of the newly applied rejection. The examiner regrets the delayed prosecution of the application.

#### ***Response to Amendment***

The Examiner has acknowledged the amended claims 30, 39, 42, 43, 45, and 47.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 30 – 43 and 45 - 47 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 30 – 43 and 45 – 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm et al (US 6,055,268; hereinafter Timm) in view of Lay et al (US 6,862,293; hereinafter Lay).

Regarding claim 30, Timm a method comprising the steps of identifying a communication capability of a remote device (col. 7, lines 2 – 5; col. 11, line 53 through col. 12, line 7; col. 18, lines 29 - 64); automatically aggregating multiple media access controllers (MACs), based at least in part, on the identified communication capability of the remote device, to establish a virtual data-sub channel within a physical data channel for communication between a communication interface and the remote device (fig. 7a; col. 7, lines 16 – 32; col. 18, lines 49 – 64; col. 23, lines 20 – 57; Timm discloses that after the initial channel probing period, the MDSL modem at the subscriber-end has determined the line code capability of the central office end modem and has a channel

model for the downstream band and, similarly, the MDSL modem at the central office end has determined the line code capability of the subscriber-end modem and has a channel model for the upstream); determining whether a data rate of the virtual sub-channel is compatible with the communication capability of the remote device (col. 5, line 66 through col. 6, line 19; col. 18, line 65 through col. 19, line 4; col. 22, line 51 through col. 23, line 13); reducing the data rate of the virtual sub-channel if the data rate is not compatible with the communication capability of the remote device (col. 5, line 66 through col. 6, line 64; col. 21, lines 26 – 48; col. 23, lines 26 – 67; Timm discloses that the data rate can be adapted by the negotiation method to a suitable level, by considering the capability of a particular DSL connection, available computational power, and any special application program requirements).

Timm teaches substantially all the limitations, but fails to specifically teach the idea of aggregating via an attachment unit interface (AUI) having four (4) 10Gb/s attachment unit interface (XAUI) channels, each channel supporting 2.5Gb/s communication rates which are aggregated to provide a 10Gb/s physical channel.

However, Lay teaches an analogous method and apparatus for providing optimized high speed link utilization that discloses the idea of aggregating via an attachment unit interface (AUI) having four (4) 10Gb/s attachment unit interface (XAUI) channels, each channel supporting 2.5Gb/s communication rates which are aggregated to provide a 10Gb/s physical channel (col. 4, lines 24 – 54; Lay discloses a XAUI module, which is a ten gigabit attachment unit interface that is specified in the

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IEEE802.3ae 10G Ethernet specification. The module comprises four lanes of byte stripped data each running at 3.125 gigabits per second).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Timm by incorporating an attachment unit interface (AUI) having four (4) 10Gb/s attachment unit interface (XAUI) channels, each channel supporting 2.5Gb/s communication rates which are aggregated to provide a 10Gb/s physical channel as evidenced by Lay for the purpose of facilitating more flexibility in connecting the 802.3ae to the physical media interface, thereby providing efficiency, high performance, scalability, ease of use and installation.

Claim 39 substantively incorporates the limitations of claim 30, but in computer software form. The reasons for the rejection of claim 30 apply to claim 39.

Regarding claim 31, Timm and Lay teach all the limitations in claim 30, and Lay further teaches that the communication link is an IEEE 802.3ae compliant communication link, with a data channel of 10 gigabit per second (Gb/s) (col. 4, lines 24 - 33).

Regarding claim 32, Timm and Lay teach all the limitations in claim 30, and Timm further teaches wherein identifying a communication capability of the remote device comprises the steps of sending a capability request (col. 18, lines 40 - 48); and receiving a response to the request denoting at least the communication capability of the remote device (col. 18, line 49 through col. 19, line 11).

Regarding claim 33, Timm and Lay teach all the limitations in claim 30, and Timm further teaches wherein identifying a communication capability of the remote device

comprises the steps of receiving an indication from the remote device denoting the communication capability of the remote device (col. 18, line 49 through col. 19, line 11; col. 27, lines 11 - 16; Timm discloses that the MDSL modem at the subscriber-end sends its rate capabilities and its preference).

Regarding claim 34, Timm and Lay teach all the limitations in claim 33, and Timm further teaches wherein the indication also denotes a processing capability of the remote device (col. 18, line 49 through col. 19, line 11).

Regarding claim 35, Timm and Lay teach all the limitations in claim 30, and Timm further teaches wherein the communication capability of the remote device is obtained by the communication interface through a negotiation process (col. 18, line 49 through col. 19, line 11).

Regarding claim 36, Timm and Lay teach all the limitations in claim 30, and Timm further teaches wherein establishing the virtual data sub-channel within a physical Ethernet data channel comprises establishing a sub-10 gigabit per second (Gb/s) virtual data channel within a physical 10Gb/s data channel (col. 23, lines 23 – 43; col. 24, lines 1 – 65; Timm discloses that the Software Driver Layer 7310, 7410 views the connection as a virtual channel called the data link channel (DLC). For convenience, the DLC may be a frame structure that represents multiple N kbit/sec channels (N=16 e.g.). The table entries show the achievable transmission throughputs in kilobits/second for a given rate R and N bits represented by each symbol. Thus, the number N of kilobits/second channels is based on processing capability of the device). Also, Timm teaches an auto-negotiation feature/step. Auto-negotiation feature/step allows devices to communicate

at the highest available rate of a device below its maximum capacity, which would be sub-10Gbs.

Regarding claim 37, Timm and Lay teach all the limitations in claim 30, and Timm further teaches wherein reducing the data rate of the virtual sub-channel comprises inserting idle control elements between substantive frames of a data stream of the virtual sub-channel (col. 48, lines 39 - 49).

Claim 40 substantively incorporates the limitations of claim 36, but in computer software form. The reasons for the rejection of claim 36 apply to claim 40.

Claim 41 substantively incorporates the limitations of claim 34 and 35, but in computer software form. The reasons for the rejection of claim 34 and 35 apply to claim 41.

Claim 43 substantively incorporates the limitations of claims 30 and 36, but in apparatus form rather than in method form. Claim 43 cites a control logic, to identify a communication capability of a remote device communicatively coupled with the control logic through a communication link [See the discussion of claim 30. "A control logic" is merely a means to identify the communication capability in claim 30]; a plurality of media access controllers (AM Cs), responsive to the control logic, automatically aggregated by the control logic to establish either a 10 gigabit per second (Gb/s) physical channel or a sub-10 Gb/s virtual channel within the 10 Gb/s physical channels to facilitate communication from the apparatus to the remote device based, at least in part, on the identified communication capability of the remote device, wherein the control logic further determines whether a data rate of the established channel is



compatible with the communication capability of the remote device and cause the aggregation of MACs to reduce the data rate of the established channel if the data rate is not compatible with the communication capability of the remote device. See claim 30 and claim 36 for the substantive discussion of the limitation.

Timm teaches substantially all the limitations, but fails to specifically teach the idea of aggregating via an attachment unit interface (AUI) having four (4) 10Gb/s attachment unit interface (XAUI) channels, each channel supporting 2.5Gb/s communication rates which are aggregated to provide a 10Gb/s physical channel.

However, Lay teaches an analogous method and apparatus for providing optimized high speed link utilization that discloses the idea of aggregating via an attachment unit interface (AUI) having four (4) 10Gb/s attachment unit interface (XAUI) channels, each channel supporting 2.5Gb/s communication rates which are aggregated to provide a 10Gb/s physical channel (col. 4, lines 24 – 54; Lay discloses a XAUI module, which is a ten gigabit attachment unit interface that is specified in the IEEE802.3ae 10G Ethernet specification. The module comprises four lanes of byte stripped data each running at 3.125 gigabits per second).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Timm by incorporating an attachment unit interface (AUI) having four (4) 10Gb/s attachment unit interface (XAUI) channels, each channel supporting 2.5Gb/s communication rates which are aggregated to provide a 10Gb/s physical channel as evidenced by Lay for the purpose of facilitating more

flexibility in connecting the 802.3ae to the physical media interface, thereby providing efficiency, high performance, scalability, ease of use and installation.

Claims 38, 42, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm and Lay in view of "802.3ae 5 Criteria" (which was referenced by "Chair's Introductory Remarks" at IEEE 802.3 10Gb/s Task Force July 2000 Plenary Week, July 11-12, 2000) and "XAUI/XGXS Proposal" presentation at IEEE 802.3 10Gb/s Task Force May 2000 Interim Meeting Plenary Week, July 11-12, 2000,

With regard to claim 38, Timm and Lay do not teach automatically aggregating 1Gb/s media access controllers (MACs) to establish the virtual sub-channel; and dynamically multiplexing the 1Gb/s MACs to appropriate channels of an attachment unit interface (AUI). Timm teaches multiple MACs with which to establish the virtual channel and dynamically multiplexing them. Note that Timm does not use the specific bandwidth specified in the claim for each MAC.

At this point, in order to make the prima facie argument that claim 38 should be rejected under 103(a); the Examiner must show the reason why one would select 1Gb/s and 10 Gb/s MACs.

The reason for the selection of the size of bandwidth of 1 Gb/s flow from further consideration of the compatibility question: what 802.3 compliant sub- 10Gb/s data channel interface bandwidths are most commercially popular and would likely must co-exist (i.e., compatible) with to 802.3ae?

It would have been obvious to one skilled in the art at the time of the invention to choose 1Gb/s channels, because that is the next fastest IEEE 802.3 standard for

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Ethernet. If anyone were to upgrade their Ethernet interfaces, those would most likely be upgrading from bandwidths in multiple of 1Gb/s.

Claim 42 substantively incorporates the limitations of claim 38, but in computer software form. The reasons for the rejection of claim 38 apply to claim 42.

Claim 45 substantively incorporates the limitations that are similar to those in claim 38, but in slightly different wording and in apparatus form. The reasons for the rejection of claim 38 still apply to claim 45.

#### **Contact Information**

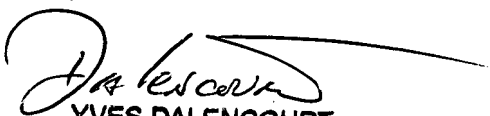
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yves Dalencourt whose telephone number is (571) 272-3998. The examiner can normally be reached on M-TH 7:30AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272 4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 20, 2007

  
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